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Field Crops
Alberta AGRICULTURE

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Varietal Description of Tipu Field Peas

ORIGIN AND BREEDING

Tipu was developed at the Agriculture Canada Research Station, Morden, Manitoba. It was selected from a backcross breeding program in which the cultivar Century was used as a recurrent parent and a semi-leafless line (afaf/StSt) from the John Innes Institute as a non-recurrent parent. The initial cross was made in 1974 and the F1 plants were selfed. The F2 semi-leafless plants were backcrossed with Century and this cycle of backcrossing and selfing repeated three times. Semi-leafless plants in the third cycle were selected on the basis of seed size, seed color, seed shape and smoothness of seed coat. These single plants were selfed for three generations and further individual plant selections made in S3 populations. Seed was increased from these single plants and one line chosen as the basis for the new variety. Tipu was tested as MP 919. It is the first semi-leafless variety licensed in Canada.

VARIETAL CHARACTERISTICS

Plant characteristics

Vines: medium length, similar to Century

Leaves: leaflets absent, modified to tendrils; normal stipules

Flowers: white

Pods: slightly smaller than Century

Maturity: medium, one day earlier than Century

Disease reactions: Tipu is similar to Century in being moderately susceptible to ascochyta blight (*Mycosphaerella pinodes*) and powdery mildew (*Erysiphe polygoni*).

Seed characteristics

Color: yellow

Size: slightly smaller than Century; 230 g/1000 seeds

Shape: round

Seed coat: smooth

Cooking quality: similar to Century

Protein: approximately 23 per cent

Acceptable Variants

The acceptable frequency of leafed plants which otherwise conform to the norm of the variety is limited to 300 plants per 10,000 plants (3%) in Selected and Foundation and 500 plants per 10,000 plants (5%) in Certified seed.

PERFORMANCE AND ADAPTATION

In 47 station-years of testing across Canada, the yield of Tipu was similar to Century on average. Tipu, however, has many advantages. It is superior in standing ability; it dries down more uniformly; the drydown period is shorter; direct combining is easier and seed cleaner since the crop stays off the ground; and there is better penetration of pesticide sprays, reduced incidence of leaf diseases and less crop residue due to lack of normal leaflets. Tipu is well adapted to areas of Manitoba, Saskatchewan and Alberta, especially areas of high rainfall, wet fall weather, heavy soils and high incidence of pests. Limited data indicate it may be adapted to some areas of Ontario and Quebec.

Maintenance of breeder seed:
Agriculture Canada Research Station, Morden, Manitoba

Canadian distributor:
SeCan Association

Recommended by:
Expert Committee on Grain Breeding and Grain Quality

Copies of this and related publications may be obtained from the Print Media Branch, Alberta Agriculture, 7000 - 113 Street, Edmonton, Alberta T6H 5T6 or Alberta Agriculture's District Offices.

EXPERIMENTAL DATA:

Table 1. Comparative Performance of Tipu and check varieties, co-operative tests of field peas, 1980-1983.

Characteristics	Location-Years	Tipu	Century	Trapper
Yield kg/ha	47	1995	2059	2004
1000 seed weight, g	47	230	241	149
Days to maturity	37	98	99	99
Vine length, cm	38	109	107	100
Protein content %	43	23.1	24.4	24.9
Cooking quality*				
Color	38	2.6	2.5	2.9
Granulation	38	2.6	2.3	2.5
Viscosity	38	14.7	13.4	16.6
Disease rating**				
Ascochyta (M. pinodes)	4	7.5	7.8	7.0
Powdery mildew	4	7.1	6.4	6.9
Footrot***	4	3.0	4.5	3.9
Septoria***	4	1.8	2.1	0.6

* *Color and granulation were subjectively evaluated on a scale of 1-5 where*
1 = very good
2 = good
3 = average
4 = fair
5 = poor.
A scale of 1-24 was used for viscosity where 1 = high and 24 = low.

** *All disease assessments were made by estimating the per cent area infected and transposing to a 1-9 scale used by the variety and disease reaction subcommittee;*
1 = no disease
9 = 75-100 per cent infection.

*** *The footrot and septoria ratings were made on two replications of the ascochyta blight test. These data are based on observations of 40 plants per entry.*

Table 2. Agronomic and cooking performance of Tipu and check varieties, co-operative tests of field peas, 1980-83.

	1980	1981	1982	1983	Mean
Yield kg/ha	(10)*	(12)	(14)	(11)	(47)
Tipu	1937	1707	2160	2154	1995
Century	1996	1807	2183	2234	2059
Trapper	1987	1629	2197	2183	2004
1000 Seed weight, g	(10)	(12)	(13)	(12)	(47)
Tipu	220	228	236	232	230
Century	236	245	243	240	241
Trapper	146	147	153	149	149
Days to maturity	(8)	(9)	(9)	(11)	(37)
Tipu	104	99	99	93	98
Century	105	100	99	93	99
Trapper	106	99	100	94	99
Vine length, cm	(8)	(10)	(9)	(11)	(38)
Tipu	116	105	119	100	109
Century	116	102	117	98	107
Trapper	109	93	108	100	100
Protein %	(10)	(9)	(13)	(11)	(43)
Tipu	23.5	23.8	22.5	22.9	23.1
Century	25.0	25.0	24.4	23.4	24.4
Trapper	25.0	25.2	25.2	24.3	24.9
Cooking quality - color	(8)	(9)	(11)	(10)	(38)
Tipu	2.6	2.5	2.5	2.6	2.6
Century	2.6	2.6	2.4	2.4	2.5
Trapper	3.3	2.8	2.8	2.8	2.9
Granulation	(8)	(9)	(11)	(10)	(38)
Tipu	2.5	2.7	2.4	2.7	2.6
Century	2.3	2.5	2.1	2.3	2.3
Trapper	2.6	2.7	2.2	2.3	2.5
Viscosity	(8)	(9)	(11)	(10)	(38)
Tipu	21.6	12.3	13.9	12.2	14.7
Century	21.2	9.6	13.3	10.6	13.4
Trapper	22.5	14.5	15.8	14.7	16.6

** location - years, see Table 3 for locations*

Table 3. Yield (kg/ha) Tipu and check varieties, co-operative tests of field peas, 1980-1983.

Location	1980			1981			1982			1983			Mean		
	Tipu	Century	Trapper	Tipu	Century	Trapper	Tipu	Century	Trapper	Tipu	Century	Trapper	Tipu	Century	Trapper
Morden	2068	1935	2305	2299	2448	2657	2528	2369	2626	1633	1990	2021	2132	2186	2402
Portage	2167	2247	1830	2041	2172	1745	2242	2098	1770	1432	1623	1433	1971	2035	1695
Brandon	—	—	—	1109	1248	1408	1813	1795	1875	1415	1932	2015	1446	1658	1766
Regina	1419	1679	1766	1167	1219	1228	2482	2603	2459	1782	1783	1865	1713	1821	1830
Melfort	1880	2195	2267	658	734	781	2699	3019	2180	—	—	—	1746	1983	1743
Indian Head	1654	1631	1856	1673	1650	2037	2624	2744	2740	1838	1871	2246	1947	1974	2220
Saskatoon	896	734	1072	1419	1382	1243	2180	2321	2628	1740	1867	1711	1559	1576	1664
Lacombe	—	—	—	3499	3267	2059	2387	1854	2128	4601	3664	3289	3496	2928	2492
Brooks	2457	2453	2980	3043	2635	2075	2656	3243	3009	2665	3006	2942	2705	2834	2639
Bow Island	2832	3195	2462	1576	2077	1749	1450	1824	2133	—	—	—	1953	2366	2115
Olds	—	—	—	1159	1680	1337	—	—	—	—	—	—	1159	1680	1337
Vermilion	—	—	—	—	—	—	1349	1306	1694	—	—	—	1349	1306	1694
Camrose	2423	2218	1829	—	—	—	1472	1032	1089	—	—	—	1948	1625	1459
Western Mean	1977	2031	2040	1786	1865	1665	2157	2184	2194	2138	2217	2134	2011	2068	2002
New Liskeard	—	—	—	—	—	—	2389	2519	2397	2460	2579	2596	2425	2549	2497
Pintendre	—	—	—	—	—	—	—	—	—	1756	1824	1809	1756	1824	1809
La Pocatiere	—	—	—	—	—	—	—	—	—	2368	2433	2532	2368	2433	2532
Macdonald Col.	—	—	—	835	1175	1233	1970	1830	2029	—	—	—	1403	1503	1631
Normandin	1573	1674	1505	—	—	—	—	—	—	—	—	—	1573	1674	1505
Eastern Mean	1573	1674	1505	835	1175	1233	2180	2175	2213	2195	2279	2312	1907	2005	2014
Overall Mean	1937	1996	1987	1707	1807	1629	2160	2183	2197	2154	2234	2183	1995	2059	2004
Location Years		(10)			(12)			(14)			(11)			(47)	